(November 17, 1997)

Geosynthetic Reinforced Slope Construction Requirments

Submittals

The Contractor shall submit to the Engineer, a minimum of 14 calendar days prior to beginning construction of each reinforced slope, detailed plans for each reinforced slope and as a minimum, the submittals shall include the following:

1. Detailed reinforced slope plans showing the actual lengths proposed for the geosynthetic reinforcing layers and the locations of each geosynthetic product proposed for use in each of the geosynthetic reinforcing layers.

2. The Contractor's proposed reinforced slope construction method, including any proposed forming systems, types of equipment to be used and proposed erection sequence.

3. Manufacturer's Certificate of Compliance, samples of the reinforced slope geosynthetic(s) and sewn seams for the purpose of acceptance as specified.

4. Details of geosynthetic reinforced slope corner construction, including details of the positive connection between the slope sections on both sides of the corner.

5. Details of terminating a top layer of reinforced slope geosynthetic and backfill due to a changing reinforced slope profile.

Approval of the Contractor's proposed reinforced slope construction details and methods shall not relieve the Contractor of their responsibility to construct the reinforced slopes in accordance with the requirements of these Specifications.

Reinforced Slope Construction

The Contractor shall excavate for the reinforced slope in accordance with Section 2-09, and conforming to the limits and construction stages shown in the Plans.

The Contractor shall direct all surface runoff from adjacent areas away from the reinforced slope construction site.

The Contractor shall begin reinforced slope construction at the lowest portion of the excavation and shall place each layer horizontally as shown in the Plans. The Contractor shall complete each layer entirely before beginning the next layer.

Geotextile splices shall consist of a sewn seam or a minimum 300 mm overlap. Geogrid splices shall consist of adjacent geogrid strips butted together and fastened using hog rings, or other methods approved by the Engineer, in such a manner to prevent the splices from separating during geogrid installation and backfilling. The Contractor shall offset geosynthetic splices in one layer from those in the other layers such that the splices shall

not line up vertically. Splices parallel to the slope face will not be allowed, as shown in the Plans.

Primary reinforcing geosynthetic shall be cut to the length shown in the Plans. For geogrids, the end of the primary reinforcing located at the face of the slope shall be cut so that the cut ribs extend no more than 15 mm but not less than 5 mm from the cross ribs. For geogrids, the length of the reinforcement required as shown in the Plans shall be defined as the distance between the geosynthetic facing and the last geogrid node at the end of the reinforcement in the slope backfill.

The Contractor shall stretch out the geosynthetic in the direction perpendicular to the slope face to ensure that no slack or wrinkles exist in the geosynthetic prior to backfilling. Soil piles or the geosynthetic manufacturer's recommended method shall be used to hold the geosynthetic in place until the specified cover material is placed.

The Contractor shall place fill material on the geosynthetic in lifts such that 150 mm minimum of fill material is between the vehicle or equipment tires or tracks and the geosynthetic at all times. The Contractor shall remove all particles within the backfill material greater than 75 mm in size. Turning of vehicles on the first lift above the geosynthetic will not be permitted. The Contractor shall not end dump fill material directly on the geosynthetic without the prior approval of the Engineer.

Should the geosynthetic be damaged or the splices disturbed, the backfill around the damaged or displaced area shall be removed and the damaged strip of geosynthetic replaced by the Contractor at no expense to the Contracting Agency.

The Contractor shall place and compact the reinforced slope backfill in accordance with the reinforced slope construction sequence detailed in the Plans. The minimum compacted backfill lift thickness of the first lift above each geosynthetic layer shall be 150 mm. The maximum compacted lift thickness anywhere within the reinforced slope shall be 250 mm.

The Contractor shall compact each layer to 95 percent of maximum density. The water content of the reinforced slope backfill shall not exceed the optimum water content by more than 3 percent. The Contractor shall not use sheepsfoot rollers or rollers with protrusions. Rollers which have a mass of more than 2,700 kg shall be used with the vibrator turned off. The Contractor may use rollers which which have a mass of 2,700 kg or less with the vibrator turned on with the prior approval of the Engineer.

The Contractor shall construct slope corners at the locations shown in the Plans, and in accordance with the reinforced slope corner construction sequence and method submitted by the Contractor and approved by the Engineer. Slope angle points with an interior angle of less than 150 degrees shall be considered to be a corner. The slope corner shall provide a positive connection between the sections of the reinforced slope on each side of the corner such that the slope backfill material cannot spill out through the corner at any time during the design life of the reinforced slope.

The Contractor shall construct the slope corner such that the reinforced slope sections on both sides of the corner attain the full geosynthetic layer embedment lengths shown in the Plans.

Where required by reinforced slope profile grade, the Contractor shall terminate top layers of reinforced slope geosynthetic and backfill in accordance with the method submitted by the Contractor and approved by the Engineer. The end of each layer at the top of the slope shall be constructed in a manner which prevents slope backfill material from spilling out the face of the slope throughout the life of the reinforced slope. If the profile of the top of the slope changes at a rate of 1V:1H or steeper, this change in top of slope profile shall be considered to be a corner.

Tolerances

The Contractor shall complete the base of the reinforced slope excavation to within plus or minus 75 mm of the staked elevations unless otherwise directed by the Engineer. The Contractor shall place the external slope dimensions to within plus or minus 50 mm of that staked on the ground. The Contractor shall space the reinforcement layers vertically to within plus or minus 25 mm of that shown in the Plans.

The completed reinforced slope(s) shall meet the following tolerances:

	Tolerance
Deviation from the design slope and horizontal alignment for the slope face, when measured along a 3-meter straight edge at the midpoint of each reinforced slope layer, shall not exceed:	130 mm
Deviation from the overall design slope per 3 meters of reinforced slope height shall not exceed:	75 mm